News and Resources from the National Institutes of Health

Kidney Disease Research Updates

National Kidney and Urologic Diseases Information Clearinghouse Summer 2006

End-Stage Renal Disease Rate Stabilizing, USRDS Finds

Promising Trend Likely Due to Better Care of Patients with Kidney Disease

The rate of end-stage renal disease (ESRD) has stabilized for the first time in the 2 decades such records have been kept, a new Government analysis showed, suggesting that improved treatment may have stopped the steady rise in the number of patients with kidney failure.

The findings, which were released in the National Institute of Diabetes and Digestive and Kidney Diseases' (NIDDK) U.S. Renal Data System (USRDS) *2005 Annual Data Report*, showed that 338 out of every million Americans had kidney failure in 2003, down slightly from the 340 per million figure in 2002. Still, rates have quadrupled since 1980.

"These findings are clearly exceedingly important," said Paul Eggers, Ph.D., one of the USRDS project officers for the NIDDK. In addition to the benefit of alleviation of suffering related to kidney failure, each patient that does not go on to ESRD saves $300,000 in health care costs over 5 years. "Cutting ESRD rates has real budgetary implications."

Economic Impacts

Though only a fraction of patients with chronic kidney disease (CKD) go on to develop renal failure, the condition is expensive to treat, requiring frequent dialysis or transplantation. Because of the impact on the health care system, the number of patients developing the condition is carefully tracked.

The positive news about ESRD comes even as the number of patients at risk for CKD continues to grow. Those with diabetes constitute 44 percent of new cases of kidney failure, and the population of people with diabetes is growing.

Improved Treatment

Research published during the 1990s recommended that doctors use new medications to help control diabetes and its consequences, and

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Eggers said the new data suggests that more and more patients are receiving those drugs.

"The number of people with diabetes is going up but ESRD has stabilized, which suggests that despite the increasing epidemic of diabetes, efficacious treatment is out there," Eggers said. Use of heart drugs, such as angiotension-converting enzyme (ACE) inhibitors and angiotension receptor blockers (ARBs), has been shown to protect the kidneys of patients with diabetes, and increasing the use of those medications as treatments is a major goal of the NIDDK's National Kidney Disease Education Program.

"In addition to the benefit of alleviation of suffering related to kidney failure, each patient that does not go on to ESRD saves $300,000 in health costs over 5 years."

Paul Eggers, Ph.D.
NIDDK USRDS Project Officer

To better understand the reasons for the falling rates of renal failure among people with diabetes, Eggers said the NIDDK is trying to track people with diabetes through the course of their disease to assess whether keeping close track of blood glucose levels is associated with a drop in the risk of kidney failure.

Healthy People 2010 Goals

The stabilizing rate of kidney failure moves clinicians one step closer to meeting the Government's Healthy People 2010 goal of reducing ESRD. The Healthy People goal, set in 2000, stated that without intervention, the rate of kidney failure would continue to grow at 5 percent a year.

The promising results, however, were not distributed evenly across the patients surveyed. The most marked ESRD decrease was in Caucasian people with diabetes who are younger than 40; their rate of kidney failure dropped 47 percent. But other patient groups, particularly African Americans, have not seen similar gains.

Eggers said the USRDS data, though clearly showing disparity, does not pinpoint the underlying reasons. "The fact of the matter is that minority populations, mostly African Americans, but also Native Americans and even Asian Americans, have much higher rates of ESRD." ■

Badman Retires After More than 3 Decades at NIDDK

Colleagues, friends, and family gathered at the NIH on May 3 to honor David Badman, Ph.D., a relentless advocate for iron research. Officially retired January 1, 2005, after 30-plus years, Badman's out-of-office message often reads "Gone Fishing." But with one hand on a fishing rod and one on an NIH Roadmap drug development project, you might not have noticed.

"I had a terrific career at the NIDDK, a wonderful institute to work for—encouraging freedom to find things needing to be done and to do them," Badman told the *NIH Record*. "There's always a way to do something. You just have to figure out how." ■

David Badman, Ph.D., shown with his former mentor, Ruth Kirschstein, M.D., senior advisor to the NIH director. Photo credit: Ernie Branson (NIH).

Kidney Disease
Research Updates

NKUDIC
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Kidney Disease Research Updates is published four times a year by the National Kidney and Urologic Diseases Information Clearinghouse (NKUDIC). The newsletter features news about kidney disease, special events, patient and professional meetings, and new publications available from the NKUDIC and other organizations.

Subscriptions are free but available only to health professionals. Send subscription inquiries to: National Kidney and Urologic Diseases Information Clearinghouse, 3 Information Way, Bethesda, MD 20892–3580. This publication is available online at: *www.kidney.niddk.nih.gov/about/newsletter.htm*.

Wright Joins NIDDK as Hematology Program Director

Daniel G. Wright, M.D., recently became program director for hematology research within the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), succeeding David Badman, Ph.D., who built the program to prominence over 3 decades. In this position, Dr. Wright will work alongside Terry Bishop, Ph.D., the NIDDK Hematology Genomics and Training Program director. He will also collaborate with the NIDDK intramural program as an associate investigator in the Molecular Medicine Branch.

"Overlapping interests in science are positive."

Daniel Wright, M.D.
NIDDK Hematology Program Director

Dr. Wright's move to the NIDDK from Boston University Medical Center, where he was professor of medicine and pathology and chief of hematology-oncology, is a professional homecoming of sorts. After receiving his M.D. and immediate post-graduate training at Yale, Dr. Wright came to the National Institutes of Health (NIH) as a clinical associate at the National Institute of Allergy and Infectious Diseases (NIAID) in the mid-1970s. He subsequently joined the National Cancer Institute (NCI) as a junior staff investigator. He left the NIH in 1980 to become chief of hematology at the Walter Reed Army Institute of Research for 12 years.

Dr. Wright says he looks forward to continuing the tradition of basic science as the core of the NIDDK Hematology Program established by Dr. Badman. He also looks forward to fostering translational research that will apply insights from basic science to clinical medicine.

Continuing a Legacy

"What has made this program so important and interesting is its history of promoting seminal basic research, particularly into hematopoietic stem cell biology, erythropoiesis, and iron metabolism," said Dr. Wright. "I would like to see this legacy continue. I would also like to see the program expand in novel translational directions."

Dr. Wright said he considers hematology research to be one of the original multidisciplinary sciences. Links between blood disorders—anemia in particular—and kidney and digestive diseases were recognized at the time the NIH was founded and led to the establishment of a hematology research program that was among the first sponsored by the NIH and that eventually became the NIDDK. Similarly, recognition of the relevance of blood disorders to understanding cancer, infection, and cardiovascular diseases led to the growth of an impressive array of hematology research programs throughout the NIH, particularly in the National Heart, Lung, and Blood Institute, the NCI, and the NIAID.

Dr. Wright is enthusiastic about the possibility of collaboration among the diverse hematology research programs at the NIH concerned with basic science and blood diseases.

"Overlapping interests in science are positive," he recently noted. "A diversity of research that approaches similar questions from different points of view is something that promotes advances in understanding health and disease and of how to favor the one by preventing and treating the other."

Dr. Wright has authored more than 130 basic and clinical research publications relating to blood cell biology and blood disorders, and he is an elected member of the American Society of Clinical Investigation, as well as a member of the American Society of Hematology and American Society for Cell Biology. ■

NIDDK Launches Hematology, Endocrinology/Metabolic Diseases Information Services

The National Institute of Diabetes and Digestive and Kidney Diseases has launched two new information services designed to bring the public and health professionals resources on hematology and endocrine/metabolic diseases.

The two information services provide links to disease resources, basic statistics on related conditions, and information about clinical trials and other resources.

The Hematology Diseases Information Service can be reached via the Internet at *hematologic.niddk.nih.gov* or by phone at 1–888–828–0877. The Endocrine and Metabolic Diseases Information Service is online at *endocrine.niddk.nih.gov* and can be contacted by phone at 1–888–828–0904.

NIDDK Nephrologist Kopp Part of Government's Katrina Response

Makeshift Hospital in College Gym Saw 15,000 Patients in 2 Weeks

When Jeffrey Kopp, M.D., a nephrologist at the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), received word on the afternoon of Sunday, August 28, that the Public Health Service (PHS) Commissioned Corps was being summoned to help respond to Hurricane Katrina, the storm was still an unknown entity. The hurricane was more than 200 miles away from New Orleans, packing 160-mile-per-hour winds and spurring intense debate over whether the tempest would hit and overwhelm Louisiana's largest city.

Among the challenges facing Kopp and his colleagues was the treatment of patients with end-stage renal disease, which is more common in Louisiana than any state other than South Dakota.

By the time Kopp, a commander in the PHS, left the shattered Gulf Coast almost 2 weeks later, there was no uncertainty about Katrina's impact. Kopp bore witness to the deaths, destruction, and mass displacement as part of the team from the PHS that established a fully functioning hospital in a college basketball stadium.

The transformation of Louisiana State University's basketball stadium into a field hospital after Katrina struck.

"I have never seen anything like this in terms of its diversity and the magnitude of the problems," said Kopp.

Building a Hospital from Scratch

Kopp and 36 PHS colleagues boarded planes at Washington D.C.'s Dulles International Airport and Atlanta's Hartsfield International Airport the evening before Katrina made landfall, arriving in Mississippi later that night. There, the team—part of a Government group led by the Surgeon General and trained to provide emergency medical expertise—waited out the storm and prepared to travel to Baton Rouge, where they were to set up a field hospital in Louisiana State University's 14,000-seat Pete Maravich Assembly Center (PMAC).

The group arrived about 9 p.m. on Tuesday, August 30. "We found a large, empty basketball court," Kopp remembered. A scant 2 hours later, a helicopter landed on the adjacent track stadium bearing the first patient.

2,000 Patients a Day

Stocked initially with 50 cots and a package of supplies, the personnel at the makeshift, 200-bed hospital saw 15,000 patients—most of them in need of immediate medical attention—over the 9 days it was in operation. Initially, some 2,000 patients a day flowed through the facility, with patients arriving by bus, ambulance, and helicopter.

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The initial group of 37 was augmented in the days to follow by Disaster Medical Assistance Teams from New Mexico and Illinois, as well as a small army of medical and non-medical volunteers. About 15,000 patients were triaged, and 6,000 were treated. Music legend Fats Domino ended up in the facility. One baby was born and two patients died.

Among the challenges facing Kopp and his colleagues was the treatment of patients with end-stage renal disease, which is more common in Louisiana than any state other than South Dakota. Katrina closed 45 dialysis clinics in New Orleans, leaving more than 2,400 patients without easy access to dialysis. As many as 700 of them ended up in Baton Rouge.

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'A Wonderful Job'

Patients who needed peritoneal dialysis were treated at the PMAC. Those requiring hemodialysis were evaluated and sent to other locations in the city where dialysis organizations had shipped in the equipment and staff to handle the sudden load. "The local nephrologists did a wonderful job of taking care of those patients," Kopp said.

Still, Kopp said lessons remain to be learned from the experience. Nearly 150 dialysis patients died, he said, and 300 patients remain unaccounted for.

Doctors treating patients at the makeshift hospital.

The PMAC stocked with cots and supplies to treat Katrina victims.

"We need to plan better," Kopp said. "We need to track these patients. We don't know what's happened to the lost patients, and we don't know much about the patients who died." He said that researchers are trying to follow the outcomes of patients who have returned to regular dialysis.

Kopp said the experience highlights ways in which the PHS can better prepare for a Katrina-magnitude disaster, such as training groups together. "Training together helps in a deployment," he said. "You get to know who has what skills and who is a natural leader. There develops an *esprit de corps*."

The experience also highlighted a basic truth about emergency medicine during the disaster: Though the physical traumas of the hurricane were not inconsequential, the most common medical culprit seen at the PMAC was exacerbation of illnesses that went untreated during the hurricane. "There was a lack of medicine," Kopp said. "You run out of medicine, and everything gets worse." ■

Five Join NIDDK Advisory Council

Five new members have been named to the Advisory Council of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The body serves both to guide the NIDDK's discussion of broad science policy issues and to provide second-level review of funding requests. The new members, who will serve until 2009, are:

From left to right: David H. Perlmutter, M.D., David M. Klurfeld, Ph.D., Juanita Lynne Merchant, M.D., Ph.D., Mitchell A. Lazar, M.D., Ph.D., Griffin P. Rodgers, M.D., Acting Director, NIDDK, and Margery Deutz Perry. Photo credit: NIDDK.

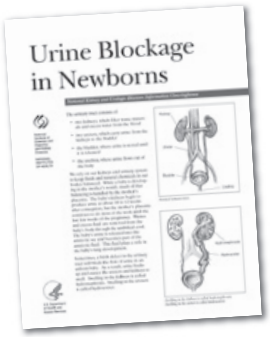
David M. Klurfeld, Ph.D.: Klurfeld serves the U.S. Department of Agriculture as a national program leader in human nutrition in the Agricultural Research Service, where he oversees research designed to define the role of food and its constituents in optimizing health. Klurfeld will serve as an ex-officio member of the Advisory Council and will attend meetings of the Digestive Diseases and Nutrition Subcommittee.

Mitchell A. Lazar, M.D., Ph.D.: Lazar is a Sylvan H. Eisnman Professor of Medicine and Genetics and chief of the division of endocrinology, diabetes, and metabolism at the University of Pennsylvania School of Medicine in Philadelphia, and he directs the Institute for Diabetes, Obesity, and Metabolism at the Hospital of the University of Pennsylvania in Philadelphia. Lazar, whose research focuses on obesity-associated insulin resistance, joins the Diabetes, Endocrinology, and Metabolic Diseases Subcommittee.

Juanita Lynne Merchant, M.D., Ph.D.: A professor of internal medicine and molecular and integrative physiology at the University of Michigan, Merchant studies the use of animal and cell culture models to better understand how bacterial colonization in the gastrointestinal tract can lead to ulcers and cancer. She joins the Digestive Diseases and Nutrition Subcommittee.

David H. Perlmutter, M.D.: Perlmutter is the Vira I. Heinz Professor and chair of pediatrics and professor of cell biology and physiology at the University of Pittsburgh School of Medicine, and the scientific director of the John G. Rangos Sr. Research Center and physician-in-chief at Children's Hospital of Pittsburgh. Perlmutter studies liver disease, including work on alpha 1-antitrypsin deficiency, the most common genetic cause of liver disease in children. Perlmutter joins the Digestive Diseases and Nutrition Subcommittee.

Margery Deutz Perry: The past chair of research at the Juvenile Diabetes Research Foundation (JDRF) International, Perry oversaw both the development and implementation of JDRF's research goals and priorities. In addition, she supervised and approved all aspects of JDRF's research programs. Perry joins the Diabetes, Endocrinology, and Metabolic Diseases Subcommittee. ■



To order, please call 1–800–891–5390 or visit *www.kidney.niddk.nih.gov.*

Urine Blockage in Newborns

Hydronephrosis—a swelling of the kidneys due to urine blockage—occurs in about one out of every 500 pregnancies. The *Urine Blockage in Newborns* fact sheet gives an overview of how this condition develops and how it is most often treated.

The 8-page publication details the different types of urine blockage, including vesicoureteral reflux—where urine flows back into the kidneys—and bladder outlet obstructions. The conditions can be diagnosed before delivery through ultrasound, amniocentesis, or chorionic villus sampling. After delivery, health professionals may use ultrasound or other imaging technologies.

Treatment for urine blockage depends on the cause and severity. The fact sheet details different strategies for handling urine blockages after birth.

What I need to know about Erection Problems

Erection problems negatively affect quality of life and sexual satisfaction. They can also serve as an early warning sign of serious health issues, including diabetes and high blood pressure. The basis for erection problems, details about medications, devices, and lifestyle changes that can help treat the condition are detailed in the newly available *What I need to know about Erection Problems*.

An estimated one in five men suffer from erectile dysfunction, suggesting a large need for the 24-page booklet. It is written at a 4th- to 6th-grade reading level and includes illustrations and ways to find a doctor or counselor.

Nutrition Fact Sheets for Chronic Kidney Disease

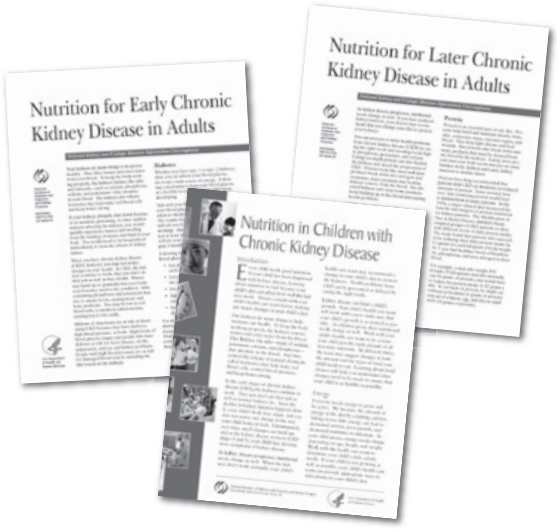
Nutrition is a key element in the management of chronic kidney disease, a condition that affects more than 10 million people in the United States, as proper diet can lessen or even reverse progression of the disease. With three new fact sheets, the National Kidney and Urologic Diseases Information Clearinghouse offers a detailed patient guide for improved health.

Nutrition for Early Chronic Kidney Disease in Adults

Nutrition for Early Chronic Kidney Disease in Adults provides readers basic information about the link between kidney disease and diet-related conditions, including diabetes and high blood pressure.

Nutrition for Later Chronic Kidney Disease in Adults

Nutrition for Later Chronic Kidney Disease in Adults offers a more comprehensive analysis of different food types and ingredients and explains how these foods impact the kidneys.



Nutrition in Children with Chronic Kidney Disease

Nutrition in Children with Chronic Kidney Disease gives basic information about diets designed for children with kidney disease and offers even the youngest patients advice about the best dietary interventions to maintain their health. ■

Agodoa Honored by HHS Office of Minority Health

Dr. Lawrence Agodoa, M.D., director of the National Institute of Diabetes and Digestive and Kidney Diseases' Office of Minority Health Research Coordination, received a Director's Award from the Department of Health and Human Services' Office of Minority Health. The honor recognized Agodoa's work on minority health issues, which extends from his role as a coordinator of the African American Study of Kidney Disease and Hypertension—the first large-scale, multicenter clinical trial in African Americans at the National Institutes of Health—to his leadership in establishing the Minority Organ and Tissue Transplantation Education Program.

National Kidney Disease Education Program Launches Spanish-Language Initiative

The National Kidney Disease Education Program, part of the National Institute of Diabetes and Digestive and Kidney Diseases, has introduced a new website—*www.nkdep.nih.gov/espanol*—and a brochure designed to highlight the connection between kidney disease and its primary risk factors: diabetes and high blood pressure. Hispanics/Latinos are at especially high risk of diabetes and hypertension and carry a kidney failure rate that is nearly twice that of Caucasians. Additional information is available at 1–866–4–KIDNEY (454–3639).

NIDDK and PKD Foundation Launch HALT-PKD Treatment Trials

The National Institute of Diabetes and Digestive and Kidney Diseases and the PKD Foundation have launched two treatment trials for autosomal dominant polycystic kidney disease (ADPKD), a common inherited disorder characterized by cysts in the kidneys and other organs, high blood pressure, and dangerous bulges in the brain's blood vessels. Symptoms usually appear between the ages of 30 and 40 and include back pain, side pain, and headaches. About half of ADPKD patients eventually develop kidney failure and require dialysis or a kidney transplant. The trial compares standard therapy—angiotensin-converting enzyme (ACE) inhibitors—with a more aggressive therapy that combines ACE inhibitors with angiotensin receptor blockers (ARBs). More than 1,000 people will be included in the study. ■

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